

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A video display device comprising:  
a red color light source to emit red color light;  
a green color light source to emit green color light;  
a blue color light source to emit blue color light;  
at least one spatial light modulator to spatially modulate, according to a video signal for a red color, a video signal for a green color, and a video signal for a blue color, said light fed from said red color light source, said light fed from said green color light source, and said light fed from said blue color light source;  
a selection controller to select a combination of a video signal for controlling said spatial light modulator and said light to be modulated; and  
a light quantity controller to control a time mean value of luminous flux of light to be modulated by said spatial light modulator, wherein

said spatial light modulator spatially modulates said red color light according to said video signal of a red color and at least one of said video signals of a green color and a blue color, said green color light according to said video signal of a green color and at least one of said video signals of a blue color and a red color, and  
said blue color light according to said video signal of a blue color and at least one of said video signals of a red color and a green color.

2. (currently amended) The video display device according to Claim 1, wherein, in said spatial light modulator, following equations hold among chromaticity coordinates  $(x_{r0}, y_{r0})$ ,  $(x_{g0}, y_{g0})$ , and  $(x_{b0}, y_{b0})$  for light of a red color, a green color, and a blue color in specifications of colorimetry by which a video signal is defined according to CIE (Commision Internationale de l'Eclairage) 1931 standard colorimetric system, a time mean value of luminous flux of each of said red color, said green color, and said blue color, and chromaticity coordinates of said red color light, said green color light, and said blue color light defined in said standard colorimetric system; said following equations comprising:

$$xr0 = (xr \times Lrr / yr + xg \times Lrg / yg + xb \times Lrb / yb) / (Lrr / yr + Lrg / yg + Lrb / yb)$$

$$yr0 = (Lrr + Lrg + Lrb) / (Lrr / yr + Lrg / yg + Lrb / yb)$$

$$xg0 = (xr \times Lgr / yr + xg \times Lgg / yg + xb \times Lgb / yb) / (Lgr / yr + Lgg / yg + Lgb / yb)$$

$$yg0 = (Lgr + Lgg + Lgb) / (Lgr / yr + Lgg / yg + Lgb / yb)$$

$$xb0 = (xr \times Lbr / yr + xg \times Lbg / yg + xb \times Lbb / yb) / (Lbr / yr + Lbg / yg + Lbb / yb)$$

$$yb0 = (Lbr + Lbg + Lbb) / (Lbr / yr + Lbg / yg + Lbb / yb)$$

wherein:

said Lrr represents a time mean value of luminous flux of red color light to be modulated according to a video signal for a red color,

said Lgr represents a time mean value of luminous flux of red color light to be modulated according to a video signal for a green color,

said Lbr represents a time mean value of luminous flux of red color light to be modulated according to a video signal for a blue color,

said Lrg represents a time mean value of luminous flux of green color light to be modulated according to a video signal for a red color,

said Lgg represents a time mean value of luminous flux of green color light to be modulated according to a video signal for a green color,

said Lbg represents a time mean value of luminous flux of green color light to be modulated according to a video signal for a blue color,

said Lrb represents a time mean value of luminous flux of blue color light to be modulated according to a video signal for a red color,

said Lgb represents a time mean value of luminous flux of blue color light to be modulated according to a video signal for a green color,

said Lbb represents a time mean value of luminous flux of blue color light to be modulated according to a video signal for a blue color,

~~said~~ said (xr, yr), said (xg, yg), and said (xb, yb) represent chromaticity coordinates of said red color light, said green color light, and said blue color light, respectively, according to said standard colorimetric system.

3. (original) The video display device according to Claim 2, wherein following equations hold between chromaticity of coordinates (xr0, yr0), (xg0, yg0), and (xb0, yb0) of light of,

respectively, red, green, and blue colors in specifications of colorimetry by which a video signal is defined according to said standard colorimetric system and chromaticity coordinates (xw, yw) of light of a standard white color in specifications of colorimetry by which a video signal is defined according to CIE (Commision Internationale de l'Eclairage) 1931 standard colorimetric system:

$$xw = (xr0 \times Lr/yr0 + xg0 \times Lg/yg0 + xb0 \times Lb/yb0) / (Lr/yr0 + Lg/yg0 + Lb/yb0)$$

$$yw = (Lr + Lg + Lb) / (Lr/yr0 + Lg/yg0 + Lb/yb0)$$

wherein:

said Lr is defined to be Lrr + Lrg + Lrb,

said Lg is defined to be Lgr + Lgg + Lgb, and

said Lb is defined to be Lbr + Lbg + Lbb.

4. (currently amended) The video display device according to Claim 1, wherein, in said spatial light modulator, following equations hold between chromaticity coordinates (xr, yr), (xg, yg), and (xb, yb) of, respectively, red color light, green color light, and blue color light according to said CIE (Commision Internationale de l'Eclairage) 1931 standard colorimetric system and chromaticity coordinates (xw, yw) of a standard white color in specifications of colorimetry by which a video signal is defined as:

$$xw = (xrl \times Lr / yrl + xgl \times Lg / ygl + xbl \times Lb / ybl) / (Lr / yrl + Lg / ygl + Lb / ybl)$$

$$yw = (Lr + Lg + Lb) / (Lr / yrl + Lg / ygl + Lb / ybl)$$

wherein:

said Lrr represents a time mean value of luminous flux of red color light to be modulated according to a video signal for a red color,

said Lgr represents a time mean value of luminous flux of red color light to be modulated according to a video signal for a green color,

said Lbr represents a time mean value of luminous flux of red color light to be modulated according to a video signal for a blue color,

said Lrg represents a time mean value of luminous flux of green color light to be modulated according to a video signal for a red color,

said Lgg represents a time mean value of luminous flux of green color light to be modulated according to a video signal for a green color,

said Lbg represents a time mean value of luminous flux of green color light to be modulated according to a video signal for a blue color,

said Lrb represents a time mean value of luminous flux of blue color light to be modulated according to a video signal for a red color,

said Lgb represents a time mean value of luminous flux of blue color light to be modulated according to a video signal for a green color,

said Lbb represents a time mean value of luminous flux of blue color light to be modulated according to a video signal for a blue color, and

wherein:

said Lr is defined to be  $L_{rr} + L_{rg} + L_{rb}$ ,

said Lg is defined to be  $L_{gr} + L_{gg} + L_{gb}$ ,

said Lb is defined to be  $L_{br} + L_{bg} + L_{bb}$ ,

said xrl is defined to be  $(x_r \times L_{rr}/y_r + x_g \times L_{rg}/y_g + x_b \times L_{rb}/y_b) / (L_{rr}/y_r + L_{rg}/y_g + L_{rb}/y_b)$ ,

said yrl is defined to be  $(L_{rr} + L_{rg} + L_{rb}) / (L_{rr}/y_r + L_{rg}/y_g + L_{rb}/y_b)$

said xgl is defined to be  $(x_r \times L_{gr}/y_r + x_g \times L_{gg}/y_g + x_b \times L_{gb}/y_b) / (L_{gr}/y_r + L_{gg}/y_g + L_{gb}/y_b)$

said ygl is defined to be  $(L_{gr} + L_{gg} + L_{gb}) / (L_{gr}/y_r + L_{gg}/y_g + L_{gb}/y_b)$

said xbl is defined to be  $(x_r \times L_{br}/y_r + x_g \times L_{bg}/y_g + x_b \times L_{bb}/y_b) / (L_{br}/y_r + L_{bg}/y_g + L_{bb}/y_b)$  and

said  $y_{bl}$  is defined to be  $(L_{br} + L_{bg} + L_{bb}) / (L_{br}/y_r + L_{bg}/y_g + L_{bb}/y_b)$ .

5. (original) The video display device according to Claim 1, wherein following expressions hold:

$$P_{rr} = P_{gr} = P_{br}$$

$$P_{rg} = P_{gg} = P_{bg}$$

$$P_{rb} = P_{gb} = P_{bb}$$

wherein:

said  $P_{rr}$ , said  $P_{gr}$ , and said  $P_{br}$  represent luminous flux of red color light to be modulated according to a video signal for a red color, a video signal for a green color, and a video signal for a blue color, respectively,

said  $P_{rg}$ , said  $P_{gg}$ , and said  $P_{bg}$  represent luminous flux of green color light to be modulated according to a video signal for a red color, a video signal for a green color, and a video signal for a blue color, respectively, and

said  $P_{rb}$ , said  $P_{gb}$ , and said  $P_{bb}$  represent luminous flux of blue color light to be modulated according to a video signal for a red color, a video signal for a green color, and a video signal for a blue color, respectively.



6. (original) The video display device according to Claim 1, wherein a period is provided during which all light sources for each color are turned OFF during one frame period.

7. (original) The video display device according to Claim 1, wherein a light source for said red color light, said green color light, said blue color light, or said white color light comprises a light emitting diode.

8. (original) The video display device according to Claim 7, wherein said light source for said red color light, said green color light, said blue color light, or said white color light comprises a plurality of said light emitting diodes.

9. (original) A video display device comprising:

a light applying unit to adjust luminous flux of each of a red color light, a green color light, and a blue color light and to switch said red color light, said green color light, and said blue color light in terms of time and to sequentially emit said red color light, said green color light, and said blue color light;

a spatial light modulator to spatially modulate light fed from said light applying unit; and

wherein said light applying unit is controlled so that, when luminous flux of said red color light being emitted while said spatial light modulator is driven according to a video signal for a red color is expressed as  $P_r$ , when luminous flux of said green color light being emitted while said spatial light modulator is driven according to a video signal for a green color is expressed as  $P_g$ , and when luminous flux of said blue color light being emitted while said spatial light modulator is driven according to a video signal for a blue color is expressed as  $P_b$ , both said green color light having luminous flux of  $K \times P_g$  ( $k$  being a coefficient and  $0 \leq K \leq 1$  same as above) and said blue color light having luminous flux of  $K \times P_b$  together with said red color light are applied when said spatial light modulator is driven according to said video signal for a red color, both said blue color light having luminous flux of  $K \times P_b$  and said red color light having luminous flux of  $K \times P_r$  together with said green color light are applied when said spatial light modulator is driven according to said video signal for a green color and both said red color light having luminous flux of  $K \times P_r$ , and said green color light having luminous flux of  $K \times P_g$  together with said blue color light are applied when said spatial light modulator is driven according to said video signal for a blue color.

10. (original) The color-sequence-type video display device according to Claim 9, wherein, in said light applying unit, a value of said coefficient  $k$  is configured to be able to be changed.

11. (original) The video display device according to Claim 9, wherein a light source for said red color light, said green color light, said blue color light, or said white color light comprises a light emitting diode.

12. (original) The video display device according to Claim 11, wherein said light source for said red color light, said green color light, said blue color light, or said white color light comprises a plurality of said light emitting diodes.

13. (original) A video display device comprising:

a light applying unit to adjust luminous flux of each of red color light, green color light, and blue color light and to switch said red color light, said green color light, and said blue color light in terms of time and to sequentially emit said red color light, said green color light, and said blue color light;

a spatial light modulator to spatially modulate light fed from said light applying unit; and

wherein said light applying unit is controlled so that red color light and white color light are applied to said spatial light modulator while said spatial light modulator is driven according to a video signal for a red color, a green color light and a white color light are applied to said spatial light modulator while said spatial light modulator is driven according to a video signal for a green color, and a blue color light and a white color light are applied to said spatial light modulator while said spatial light modulator is driven according to a video signal for a blue color.

14. (original) The video display device according to Claim 13, wherein said white color light is applied to said spatial light modulator according to driving timing for said spatial light modulator by said video signal for a red color, said video signal for a green color, and said video signal for a blue color.

15. (original) The video display device according to Claim 13, wherein said white color light is being lighted all the time.

16. (original) The video display device according to Claim 13, wherein brightness of said white color light is configured to be able to be changed by external control.

17. (original) The video display device according to Claim 13, wherein a light source for said red color light, said green color light, said blue color light, or said white color light comprises a light emitting diode.

18. (original) The video display device according to Claim 17, wherein said light source for said red color light, said green color light, said blue color light, or said white color light comprises a plurality of said light emitting diodes.

19. (currently amended) A video display device comprising:

a red color light source to emit red color light;

a green color light source to emit green color light;

a blue color light source to emit blue color light;

at least one spatial light modulating means ~~to~~ for spatially ~~modulate~~ modulating, according to a video signal for a red color, a video signal for a green color, and a video signal for a blue color, said light fed from said red color light source, said

light fed from said green color light source, and said light fed from said blue color light source;

a selection controlling means ~~to select~~ for selecting a combination of a video signal for controlling said spatial light modulating means and said light to be modulated; and

a light quantity control means ~~to control~~ for controlling a time mean value of luminous flux of light to be modulated by said spatial light modulating means, wherein

said spatial light modulating means spatially modulates said red color light according to said video signal of a red color and at least one of said video signals of a green color and a blue color,

said green color light according to said video signal of a green color and at least one of said video signals of a blue color and a red color, and

said blue color light according to said video signal of a blue color and at least one of said video signals of a red color and a green color.

20. (currently amended) The video display device according to Claim 19, wherein, in said spatial light modulating means, following equations hold among chromaticity coordinates  $(x_{r0}, y_{r0})$ ,  $(x_{g0}, y_{g0})$ , and  $(x_{b0}, y_{b0})$  for light of a red color, a

green color, and a blue color in specifications of colorimetry by which a video signal is defined according to CIE (Commision Internationale de l'Eclairage) 1931 standard colorimetric system, a time mean value of luminous flux of each of said red color, said green color, and said blue color, and chromaticity coordinates of said red color light, said green color light, and said blue color light defined in said standard colorimetric system; said following equations comprising:

$$xr0 = (xr \times Lrr / yr + xg \times Lrg / yg + xb \times Lrb / yb) / (Lrr / yr + Lrg / yg + Lrb / yb)$$

$$yr0 = (Lrr + Lrg + Lrb) / (Lrr / yr + Lrg / yg + Lrb / yb)$$

$$xg0 = (xr \times Lgr / yr + xg \times Lgg / yg + xb \times Lgb / yb) / (Lgr / yr + Lgg / yg + Lgb / yb)$$

$$yg0 = (Lgr + Lgg + Lgb) / (Lgr / yr + Lgg / yg + Lgb / yb)$$

$$xb0 = (xr \times Lbr / yr + xg \times Lbg / yg + xb \times Lbb / yb) / (Lbr / yr + Lbg / yg + Lbb / yb)$$

$$yb0 = (Lbr + Lbg + Lbb) / (Lbr / yr + Lbg / yg + Lbb / yb)$$

wherein:

said Lrr represents a time mean value of luminous flux of red color light to be modulated according to a video signal for a red color,

said Lgr represents a time mean value of luminous flux of red color light to be modulated according to a video signal for a green color,

said Lbr represents a time mean value of luminous flux of red color light to be modulated according to a video signal for a blue color,

said Lrg represents a time mean value of luminous flux of green color light to be modulated according to a video signal for a red color,

said Lgg represents a time mean value of luminous flux of green color light to be modulated according to a video signal for a green color,

said Lbg represents a time mean value of luminous flux of green color light to be modulated according to a video signal for a blue color,

said Lrb represents a time mean value of luminous flux of blue color light to be modulated according to a video signal for a red color,

said Lgb represents a time mean value of luminous flux of blue color light to be modulated according to a video signal for a green color,



said Lbb represents a time mean value of luminous flux of blue color light to be modulated according to a video signal for a blue color,

~~said~~ said (xr, yr), said (xg, yg), and said (xb, yb) represent chromaticity coordinates of said red color light, said green color light, and said blue color light, respectively, according to said standard colorimetric system.

21. (original) The video display device according to Claim 20, wherein following equations hold between chromaticity of coordinates (xr0, yr0), (xg0, yg0), and (xb0, yb0) of light of, respectively, red, green, and blue colors in specifications of colorimetry by which a video signal is defined according to said standard colorimetric system and chromaticity coordinates (xw, yw) of light of a standard white color in specifications of colorimetry by which a video signal is defined according to CIE (Commision Internationale de l'Eclairage) 1931 standard colorimetric system:

$$xw = (xr0 \times Lr / yr0 + xg0 \times Lg / yg0 + xb0 \times Lb / yb0) / (Lr / yr0 + Lg / yg0 + Lb / yb0)$$

$$yw = (Lr + Lg + Lb) / (Lr / yr0 + Lg / yg0 + Lb / yb0)$$

wherein:

said Lr is defined to be Lrr + Lrg + Lrb,

said Lg is defined to be Lgr + Lgg + Lgb, and

said  $L_b$  is defined to be  $L_{br} + L_{bg} + L_{bb}$ .

22. (currently amended) The video display device according to Claim 19, wherein, in said spatial light modulating means, following equations hold between chromaticity coordinates  $(x_r, y_r)$ ,  $(x_g, y_g)$ , and  $(x_b, y_b)$  of, respectively, red color light, green color light, and blue color light according to said CIE (Commision Internationale de l'Eclairage) 1931 standard colorimetric system and chromaticity coordinates  $(x_w, y_w)$  of a standard white color in specifications of colorimetry by which a video signal is defined as:

$$x_w = (x_{r1} \times L_r / y_{r1} + x_{g1} \times L_g / y_{g1} + x_{b1} \times L_b / y_{b1}) / (L_r / y_{r1} + L_g / y_{g1} + L_b / y_{b1})$$

$$y_w = (L_r + L_g + L_b) / (L_r / y_{r1} + L_g / y_{g1} + L_b / y_{b1})$$

wherein:

said  $L_{rr}$  represents a time mean value of luminous flux of red color light to be modulated according to a video signal for a red color,

said  $L_{gr}$  represents a time mean value of luminous flux of red color light to be modulated according to a video signal for a green color,

said Lbr represents a time mean value of luminous flux of red color light to be modulated according to a video signal for a blue color,

said Lrg represents a time mean value of luminous flux of green color light to be modulated according to a video signal for a red color,

said Lgg represents a time mean value of luminous flux of green color light to be modulated according to a video signal for a green color,

said Lbg represents a time mean value of luminous flux of green color light to be modulated according to a video signal for a blue color,

said Lrb represents a time mean value of luminous flux of blue color light to be modulated according to a video signal for a red color,

said Lgb represents a time mean value of luminous flux of blue color light to be modulated according to a video signal for a green color,

said Lbb represents a time mean value of luminous flux of blue color light to be modulated according to a video signal for a blue color, and

wherein:

said Lr is defined to be  $Lrr + Lrg + Lrb$ ,

said Lg is defined to be  $L_{gr} + L_{gg} + L_{gb}$ ,  
said Lb is defined to be  $L_{br} + L_{bg} + L_{bb}$ ,  
said xrl is defined to be  $(x_r \times L_{rr}/y_r + x_g \times L_{rg}/y_g + x_b \times L_{rb}/y_b) / (L_{rr}/y_r + L_{rg}/y_g + L_{rb}/y_b)$ ,  
said yrl is defined to be  $(L_{rr} + L_{rg} + L_{rb}) / (L_{rr}/y_r + L_{rg}/y_g + L_{rb}/y_b)$   
said xgl is defined to be  $(x_r \times L_{gr}/y_r + x_g \times L_{gg}/y_g + x_b \times L_{gb}/y_b) / (L_{gr}/y_r + L_{gg}/y_g + L_{gb}/y_b)$   
said ygl is defined to be  $(L_{gr} + L_{gg} + L_{gb}) / (L_{gr}/y_r + L_{gg}/y_g + L_{gb}/y_b)$   
said xbl is defined to be  $(x_r \times L_{br}/y_r + x_g \times L_{bg}/y_g + x_b \times L_{bb}/y_b) / (L_{br}/y_r + L_{bg}/y_g + L_{bb}/y_b)$  and  
said ybl is defined to be  $(L_{br} + L_{bg} + L_{bb}) / (L_{br}/y_r + L_{bg}/y_g + L_{bb}/y_b)$ .

23. (original) The video display device according to Claim 19, wherein following expressions hold:

$$P_{rr} = P_{gr} = P_{br}$$

$$P_{rg} = P_{gg} = P_{bg}$$

$$P_{rb} = P_{gb} = P_{bb}$$

wherein:

said Prr, said Pgr, and said Pbr represent luminous flux of red color light to be modulated according to a video signal for

a red color, a video signal for a green color, and a video signal for a blue color, respectively,

said Prg, said Pgg, and said Pbg represent luminous flux of green color light to be modulated according to a video signal for a red color, a video signal for a green color, and a video signal for a blue color, respectively, and

said Prb, said Pgb, and said Pbb represent luminous flux of blue color light to be modulated according to a video signal for a red color, a video signal for a green color, and a video signal for a blue color, respectively.

24. (original) A video display device comprising:

a light applying means to adjust luminous flux of each of a red color light, a green color light, and a blue color light and to switch said red color light, said green color light, and said blue color light in terms of time and to sequentially emit said red color light, said green color light, and said blue color light;

a spatial light modulating means to spatially modulate light fed from said light applying means; and

wherein said light applying means is controlled so that, when luminous flux of said red color light being emitted while said spatial light modulating means is driven according to a video signal for a red color is expressed as  $Pr$ , when luminous flux of

said green color light being emitted while said spatial light modulating means is driven according to a video signal for a green color is expressed as  $P_g$ , and when luminous flux of said blue color light being emitted while said spatial light modulating means is driven according to a video signal for a blue color is expressed as  $P_b$ , both said green color light having luminous flux of  $K \times P_g$  ( $k$  being a coefficient and  $0 \leq K \leq 1$  same as above) and said blue color light having luminous flux of  $K \times P_b$  together with said red color light are applied when said spatial light modulating means is driven according to said video signal for a red color, both said blue color light having luminous flux of  $K \times P_b$  and said red color light having luminous flux of  $K \times P_r$  together with said green color light are applied when said spatial light modulating means is driven according to said video signal for a green color and both said red color light having luminous flux of  $K \times P_r$ , and said green color light having luminous flux of  $K \times P_g$  together with said blue color light are applied when said spatial light modulating means is driven according to said video signal for a blue color.

25. (original) The color-sequence-type video display device according to Claim 24, wherein, in said light applying means, a value of said coefficient  $k$  is configured to be able to be changed.

26. (original) A video display device comprising:

a light applying means to adjust luminous flux of each of red color light, green color light, and blue color light and to switch said red color light, said green color light, and said blue color light in terms of time and to sequentially emit said red color light, said green color light, and said blue color light;

a spatial light modulating means to spatially modulate light fed from said light applying means; and

wherein said light applying means is controlled so that red color light and white color light are applied to said spatial light modulating means while said spatial light modulating means is driven according to a video signal for a red color, a green color light and a white color light are applied to said spatial light modulating means while said spatial light modulating means is driven according to a video signal for a green color, and a blue color light and a white color light are applied to said spatial light modulating means while said spatial light modulating means is driven according to a video signal for a blue color.

27. (original) The video display device according to Claim 26, wherein said white color light is applied to said spatial light modulating means according to driving timing for said spatial

light modulating means by said video signal for a red color, said video signal for a green color, and said video signal for a blue color.

28. (original) The video display device according to Claim 26, wherein said white color light is being lighted all the time.